



No. 2.

THE FREETHINKER'S TEXT-BOOK.

PART I.

MAN ; WHENCE AND HOW ?



OR,

REVEALED AND REAL SCIENCE IN CONFLICT.

BY C. BRADLAUGH.

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which have completely amalgamated, or be it descended from the wolf, the fox, or the jackal, every theory must limit its natural range to the European world. The merino sheep is still represented in the wild state by the mouflon of Sardinia, and was formerly wild in all the mountains of Spain; whether the sheep of the patriarchs were derived from those of Mount Taurus, or from Armenia, still they differed from those of Western Europe; since, a thousand years before our era, the Phœnicians preferred the wool from the Iberian peninsula to that of their Syrian neighbours. The goats differ so much in different parts of the world, that it is still less possible to refer them to one common stock; and while Nepaul and Cashmere have their own breeds, we may well consider those of Egypt and Sinai as distinct, especially as they differ equally from those of Caucasus and of Europe. The common bull is derived from the wild species which has become extinct in Europe, and is not identical with any of the wild species of Asia, notwithstanding some assertions to the contrary. The hog descends from the common boar, now found wild over the whole temperate zone in the Old World. Both ducks and geese have their wild representatives in Europe; so also the pigeon. As for the common fowls, they are decidedly of East Asiatic origin; but the period of their importation is not well known, now even the wild species from which they are derived. The wild turkey is well known as an inhabitant of the American continent.

“Now, taking further into account the special distribution of *all* the animals, wild as well as domesticated, of the European temperate zone, we may sub-divide it into the following eight faunæ:—1st, Scandinavian fauna; 2nd, Russian fauna; 3rd, the fauna of Central Europe; 4th, the fauna of Southern Europe; 5th, the fauna of Iran; 6th, the Syrian fauna; 7th, the Egyptian fauna; and 8th, the fauna of the Atlas.

“Here, again, it cannot escape the attention of the careful observer, that the European zoological realm is circumscribed within exactly the same limits as the so-called white race of man, including, as it does, the inhabitants of South-Western Asia, and of North Africa, with the lower parts of the valley of the Nile. We exclude, of course, modern migrations and historical changes of habitation from this assertion. Our statements are to be understood as referring only to the aboriginal, or ante-historical distribution of man,

or rather to the distribution as history finds it. And in this respect there is a singular fact, which historians seem not to have sufficiently appreciated, that the earliest migrations recorded, in any form, show us man meeting man, wherever he moves upon the inhabitable surface of the globe, small islands excepted.

“It is, farther, very striking, that the different subdivisions of this race, even to the limits of distinct nationalities, cover precisely the same ground as the special faunæ or zoological provinces of this most important part of the world, which in all ages has been the seat of the most advanced civilisation. In the south-west of Asia we find (along the table-land of Iran) Persia and Asia Minor; in the plains southward, Mesopotamia and Syria; along the sea shores, Palestine and Phœnicia; in the Valley of the Nile, Egypt; and along the southern shores of Africa, Barbary. Thus we have Semitic nations covering the North African and South-West Asiatic fauna, while the South European peninsulas, including Asia Minor, are inhabited by Græco-Roman nations, and the cold temperate zone, by Celto-Germanic nations; the eastern range of Europe being peopled by Slaves. This coincidence may justify the inference of an independent origin for these different tribes, as soon as it can be admitted that the races of men were primitively created in nations; the more so, since all of them claim to have been *autochthones* of the countries they inhabit. This claim is so universal that it well deserves more attention. It may be more deeply founded than historians generally seem inclined to grant. Though temperate America resembles closely in its animal creation the countries of Europe and Asia belonging to the same zone, we meet with physical and organic features in this continent which differ entirely from those of the Old World. The tropical realms, connected there with those of the temperate zone, though bound together by some analogies, differ essentially from one another. Tropical Africa has hardly any species in common with Europe, though we may remember that the lion once extended to Greece, and that the jackal is to this day found upon some islands in the Adriatic, and in Morea. Tropical Asia differs equally from its temperate regions, and Australia forms a world by itself. Not so in Southern America. The range of mountains which extends, in almost unbroken continuity, from the Arctic to Cape Horn, establishes a similarity between North

and South America, which may be traced also, to a great degree, in its plants and animals. Entire families which are peculiar to this continent have their representatives in North as well as South America, the cactus and didelphis, for instance ; some species, as the puma, or American lion, may even be traced from Canada to Patagonia. In connection with these facts, we find that tropical America, though it has its peculiar types, as characteristic as those of tropical Africa, Asia, and Australia, does not furnish analogues of the giants of Africa and Asia ; its largest pachyderms being tapirs and pecaris, not elephants, rhinoceroses, and hippopotami ; and its largest ruminants, the llamas and alpacas, and not camels and giraffes ; whilst it reminds us, in many respects, of Australia, with which it has the type of marsupials in common, though ruminants and pachyderms, and even monkeys, are entirely wanting there. Thus, with due qualification, it may be said, that the whole continent of America, when compared with the corresponding twin-continents of Europe, Africa, or Asia—Australia is characterised by a much greater uniformity of its natural productions, combined with a special localisation of many of its subordinate types, which will justify the establishment of many special faunæ within its boundaries.

“With these facts before us, we may expect that there should be no great diversity among the tribes of man inhabiting the continent of America ; and, indeed, the most extensive investigation of their peculiarities has led Dr. Morton to consider them as constituting but a single race, from the confines of the Esquimaux down to the southernmost extremity of the continent. But, at the same time, it should be remembered that, in accordance with the zoological character of the whole realm, this race is divided into an infinite number of small tribes, presenting more or less difference one from another.

“As to the special faunæ of the American continent, we may distinguish, within the temperate zone, a Canadian fauna, extending from Newfoundland across the great lakes to the base of the Rocky Mountains, a fauna of the North American table-land, a fauna of the North-west coast, a fauna of the middle United States, a fauna of the Southern United States, and a Californian fauna, the characteristic features of which I shall describe on another occasion.

“When we consider, however, the isolation of the American continent from those of the Old World, nothing is more

striking in the geographical distribution of animals than the exact correspondence of all the animals of the northern temperate zone of America with those of Europe.

“In tropical America we may distinguish a central American fauna, a Brazilian fauna, a fauna of the Pampas, a fauna of the Cordilleras, a Peruvian fauna, and a Patagonian fauna.

“The slight differences existing between the faunæ of the temperate zone have required a fuller illustration than may be necessary to characterise the zoological realms of the tropical regions, and the southern hemisphere generally. It is sufficient for our purpose to say here, that these realms are at once distinguished by the prevalence of peculiar types, circumscribed within the natural limits of the three continents, extending in complete isolation towards the southern pole. In this respect there is already a striking contrast between the northern and the southern hemisphere. But the more closely we compare them with one another, the greater appear their differences. We have already seen how South America differs from Africa, the East Indies, and Australia, by its closer connection with North America. Notwithstanding, however, the absence in South America of those sightly animals so prominent in Africa and tropical Asia, its general character is, like that of all the tropical continents, to nourish a variety of types which have no close relations to those of other continents. Its monkeys and edentata belong to genera which have no representatives in the Old World; among pachyderms it has pecaris, which are entirely wanting elsewhere; and though the tapirs occur also in the Sunda Islands, that type is wanting in Africa, where in compensation we find the hippopotamus, not found in either Asia or America. We have already seen that the marsupials of South America differ entirely from those of Australia. Its ostriches differ also generically from those of Africa, tropical Asia, New Holland, &c.

“If we compare, further, the southern continents of the Old World with one another, we find a certain uniformity between the animals of Africa and tropical Asia. They have both elephants and rhinoceroses, though each has its peculiar species of these genera, which occur neither in America nor in Australia; whilst cercopithecids and antelopes prevail in Africa, and long-armed monkeys and stags in tropical Asia. Moreover, the black oranges are peculiar to Africa, and the red oranges to Asia. As to Australia, it has

neither monkeys nor pachyderms, nor edentata, but only marsupials and monotremes. We need, therefore, not carry these comparisons further, to be satisfied that Africa, tropical Asia, and Australia constitute independent zoological realms.

“The continent of Africa south of the Atlas has a very uniform zoological character. This realm may, however, be sub-divided, according to its local peculiarities, into a number of distinct faunæ. In its more northern parts we distinguish the fauna of the Sahara, and those of Nubia and Abyssinia ; the latter of which extends over the Red Sea into the tropical parts of Arabia. They are inhabited by two distinct races of men, the Nubians and Abyssinians, receding greatly in their features from the woolly-haired Negroes with flat, broad noses, which cover the most central parts of the continent. But even here we may distinguish the fauna of Senegal from that of Guinea and that of the African Table-land. In the first, we notice particularly the chimpanzee ; in the second, the gorilla. There is no anthropoid monkey in the third. A fuller illustration of this subject might show how peculiar tribes of Negroes cover the limits of the different faunæ of tropical Africa, and establish in this respect a parallelism between the nations of this continent and those of Europe.

“The East Indian realm is now very well known zoologically, thanks to the efforts of English and Dutch naturalists, and may be sub-divided into three faunæ—that of Dukhun, that of the Indo-Chinese peninsula, and that of the Sunda Islands, Borneo, and the Philippines. There is, however, one feature in this realm, which requires particular attention, and has a high importance with reference to the study of the races of men. We find here upon Borneo (an island not so extensive as Spain) one of the best known of those anthropoid monkeys, the orang-outan, and with him, as well as upon the adjacent islands of Java and Sumatra, and along the coasts of the two East Indian peninsulæ, not less than ten other different species of *Hylobates*, the long-armed monkeys ; a genus which, next to the orang and chimpanzee, ranks nearest to man. One of these species is circumscribed within the island of Java, two along the coast of Coromandel, three upon that of Malacca, and four upon Borneo. Also, eleven of the highest organised beings which have performed their part in the plan of the creation within tracts of land inferior in extent to the range of any of the historical nations of men.

"In accordance with this fact, we find three distinct races within the boundaries of the East Indian realm : the Telingan race in anterior India, the Malays in posterior India and upon the islands, upon which the Negrillos occur with them. Such combinations justify fully a comparison of the geographical range covered by distinct European nations with the narrow limits occupied upon earth by the oranges, the chimpanzees, and the gorillas ; and though I still hesitate to assign to each an independent origin (perhaps rather from the difficulty of divesting myself of the opinions universally received, than from any intrinsic evidence), I must, in presence of these facts, insist at least upon the probability of such an independence of origin of all nations ; or, at least, of the independent origin of a primitive stock for each, with which at some future period, migrating or conquering tribes have more or less completely amalgamated, as in the case of mixed nationalities. The evidence adduced from the affinities of the languages of different nations in favour of a community of origin is of no value when we know that among vociferous animals every species has its peculiar intonations, and that the different species of the same family produce sound as closely allied, and forming as natural combinations, as the so-called Indo-Germanic languages compared with one another. Nobody, for instance, would suppose that because the notes of the different species of thrushes, inhabiting different parts of the world, bear the closest affinity to one another, these birds must all have a common origin ; and yet, with reference to man, philologists still look upon the affinities of languages as affording direct evidence of such a community of origin among the races, even though they have already discovered the most essential differences in the very structure of these languages.

"Ever since New Holland was discovered, it has been known as the land of zoological marvels. All its animals differ so completely from those of other parts of our globe, that it may be said to constitute a world in itself, as isolated in that respect from the other continents as it truly is in its physical relations. As a zoological realm, it extends to New Guinea and some adjacent islands. New Holland, however, constitutes a distinct fauna, which at some future time may be still further subdivided, differing from that of the islands north of it. The animals of this insular continent belong to two families only, considering the class of mammalia alone, the marsupials, and the monotremes.

Besides these there are found bats, and mice, and a wild dog ; but there are neither true edentata, nor ruminants, nor pachyderms, nor monkeys, in this realm, which is inhabited by two races of men, the Australian in New Holland, and the Papuans upon the Islands."

We get thus eight realms with distinct types of man, and accompanying fauna and flora. 1. The Arctic with the Esquimaux. 2. The Mongol with the Chinaman. 3. The European with the Caucasian. 4. The American with the Indian. 5. The African with the Negro. 6. The Hottentot with the Bushman. 7. The East Indian with the Malay. 8. The Australian with the Papuan. And the question is—supposing an universal deluge A.M. 1656—have all these diverse human beings developed from the family of one man Noah, since B.C. 2348? or rejecting the story of the universality of the Deluge, have the differing races developed from one man Adam, and one woman Eve, in less than 6,000 years?

The late Professor J. W. Jackson, in a remarkable paper published in the *Anthropological Review* for 1869, thus presents the Caucasian race : "The three great religions of existing Caucasian man are Judaism, Christianity, and the faith of Islam, all of Semitic origin ; while, on the other hand, our science, literature, and art are mostly of Aryan lineage. So strongly pronounced, indeed, are these racial proclivities that the religion of the Aryan ever tends to assume the form of a philosophic Pantheism, eventuating in a deification and worship of nature, as among the ancient Hindoos and modern Europeans ; while, conversely, the science of the Semite is ever prone to sink into a superstition, as in the astrology of the Chaldeans and the alchemy of the Saracens. This is only saying in other words that, influenced by his predominant moral principles, the Semite believes and worships, where the Aryan, guided by his preponderating intellectual faculties, investigates facts and deduces conclusions.....What is the Caucasian, whereof Aryan and Semite are but the two great sub-divisions? And we reply, that he is pre-eminently the man of civilisation. All pure savages incline either to the Negroid or the Turanian type ; they do so from the absence of adequate nervous force for their effective development into the truly human form. This is not the utterance of prejudice, but the simple statement of a fact. The coarser types are differenced from the finer by their inferiority, that is, by the comparative weakness of

the moral and intellectual elements, and the preponderating power of the passional and impulsive. This is clearly indicated, to a properly-qualified observer, in their physical organisation. In the Negroid type, the brain lacks volume; the nervous system is not adequately centralised; and this brain, thus deficient in quantity, is equally wanting in quality. The rude mould of the features, where all the indications of intelligence are weak, while those which imply sensuality are large; the rudimentary character of the hands, the semi-quadrumanous structure of the feet, and the generally unfinished build of the whole body, to say nothing of the porous skin and its woolly envelope, are ample and undeniable evidence of the exceedingly coarse quality of the Negroid family. And this brain, thus deficient both in quantity and quality, is also equally wanting in form. The cranium is compressed laterally and retreats anteriorly, indicating an utter incapacity either for breadth of view or depth of thought. But it is elevated coronally and developed posteriorly, showing that here, in this rootman of the South, we have the invaluable germs of moral sentiment and domestic affection.

“Diametrically opposed to this, as if formed under transverse influences, we have the broad-built Turanian, in whom, however, with somewhat more of the human, there is still much of the animal element. He has, in excess, that which is wanting in his Negroid brother—breadth. His volume of brain is enormous, though its quality is coarse and its form rude. He has attained to a higher grade of centralisation—and we have reason to believe, therefore, of specialisation—than the primitive man of the South. His deficiency is in altitude. He lacks the higher moral sentiments, and the creative portion of the intellectual faculties. But he has practical power and executant ability of a high order. In other words, he has force, but is wanting in susceptibility to the higher motives for its noblest exercise. As an instrument in the hands of a superior race, he may prove invaluable; but as a leader and pioneer of humanity, he is fatally deficient.

“What, then, is the savage? and we reply, that he is man on the plane of nature, adapted—by the limitation of his faculties and the bluntness of his susceptibilities—to the only social and physical life possible in the wilderness and the forest, at the dawn of human existence on earth.....

“Such mental deficiencies, when characteristic of a race,

are of necessity reflected in their organisation ; that is, in the volume and contour of the brain, in the form of the features, in the expression of the face, in the build of the body, and in the fashion of its extremities. And thus, then, it is that we have the savage, precisely as we have the lion and the eagle, the jackal and the vulture, we have him as an organic adaptation to a certain environment with which he is in harmony, because, as the advocates of development would say, he was its product. Now, that this primitive savage always inclines either to the Negroid or the Turanian type, is a fact of no slight significance in the science of man.....

“The Caucasian is emphatically the man of civilisation, as contra-distinguished from the savage. What, then, is this Caucasian ? And we reply, the highest type to which man has yet attained. He presents us with that form of humanity in which cerebation and respiration are most powerful in proportion to alimentation and reproduction. He is the most effectually developed type of man, the one in whom the functions, that are specially human, are the most powerful in proportion to those which are also bestial. This, of course, implies an organic structure, adapted as an instrument for the efficient discharge of these higher duties. And accordingly we find that his brain is equal in volume to that of the Turanian, while it is superior in form and finer in quality ; thus conducting, through intensity and activity, not only to greater mental power, but also to power of a higher order. His thoughts are more logically concatenated, and his conceptions are more beautiful and artistic. His special superiority to the Turanian is, however, in the moral sentiments. He is better developed coronally ; and hence, is more amenable to the influence of ‘faith, hope, and charity,’ and, we may add, justice. Thus, in a sense, it may be said that he unites the excellences of the two inferior races without the defects of either. He has the breadth of the Turanian without his coarseness, and the altitude of the negro without his narrowness, while in temperament he immeasurably transcends them both. Of course, with such a brain, so powerful in structure, so fine in quality, so complex in its convolutions, and so intense in its functions, there must be a face to correspond ; that is, with features distinctly marked, and delicately chiselled, and susceptible, in duly cultured individualities, of all the varying shades of intellectual expression.....

“But this high-caste Caucasian, this man of civilisation,

is organically, lingually, and theologically, divisible into two well-marked families, Aryans and Semites, or Indo-Europeans and Arabians ; the former especially located in Europe, and the latter in Asia, although the first are the predominant population of Persia and India, and the last extend throughout all Northern Africa. It may thus be said that the Caucasian occupies the temperate zone of the world, from India to Britain, with the Negroid races to the south, and the Turanian to the north, the Semites, resting on and through Moors, Tuaricks, Nubians, and Abyssinians, gradually shading off into the former ; while the Aryans rest on and through Slavons, Muscovites, and Cossacks, gradually shade off into the latter. Thus, whether we regard their geographical position, their mental constitution, or their organic specialities, we shall find that the Semites are allied, as flower and root, to the Negroid type of the south, and the Aryans to the Turanian type of the north."

On this statement there are only two alternatives. Either, as stated in the Bible, all mankind originated from one pair, and the different races, with their peculiarities now found existing, are to be attributed to subsequent changes, an assumption for which, as Louis Agassiz says, "there is no evidence whatever ;" or, we must acknowledge that the diversity amongst animals, including man, is a primordial fact.

Mr. Lawrence dealt with this question very distinctly, more than fifty years since, in his "Lectures on Man" (sec. 2, cap. i.), on the varieties of the human species ; but the researches of the last half century have opened out so many new stores of evidence that it seems quite unnecessary here to do more than pay tribute to the exertions of the intrepid physiologist.

"If," say Dr. J. C. Notts ("Types of Mankind," p. 57), "the *unity* of the races or species of men be assumed, there are but three suppositions on which the *diversity* now seen in the white, black, and intermediate colours, can be accounted for, viz. :—

"1st. A *miracle*, or direct act of the Almighty, in changing one type into another.

"2nd. The gradual action of physical causes, such as climate, food, mode of life, etc.

"3rd. Congenital, or accidental varieties.

"There being no evidence whatever in favour of the first hypothesis, we pass it by. The second and third have

been sustained with signal ability by Dr. Prichard, in his 'Physical History of Mankind.'

"Is it not strange that all the remarkable changes of type spoken of by Prichard and others should have occurred in remote ante-historic times, and amongst ignorant, erratic tribes? Why is it that no instance of these remarkable changes can be pointed out which admits of conclusive evidence? The civilised nations of Europe have been for many centuries sending colonies to Asia, Africa, and America; amongst Mongols, Malays, Africans, and Indians; and why has no example occurred in any of these colonies to substantiate the argument? The doubtful examples of Prichard are refuted by others, which he cites on the adverse side, of a positive nature. He gives examples of Jews, Persians, Hindoos, Arabs, &c., who have emigrated to foreign climates, and, at the end of one thousand or fifteen hundred years, have preserved their original types in the midst of widely different races. Does nature anywhere operate by such opposite and contradictory laws?

"A few generations in animals are sufficient to produce all the changes they usually undergo from climate, and yet the races of men retain their leading characteristics for ages, without approximating to aboriginal types.

"In fact, so unsatisfactory is the argument based on the influence of climate to Prichard himself, that he virtually abandons it in the following paragraph: 'It must be observed,' says he, 'that the changes alluded to do not so often take place by alteration in the physical character of a whole tribe simultaneously, as by the *springing up* of some new *congenital* peculiarity, which is afterwards propagated, and becomes a character more or less constant in the progeny of the individual in whom it first appeared, and is *perhaps* gradually communicated by intermarriages to a whole stock or tribe. This, it is obvious, can only happen in a long course of time.'

"We beg leave to fix your attention on this vital point. It is a commonly-received error that the influence of a hot climate is gradually exerted on successive generations, until one species of mankind is completely changed into another; a dark shade is impressed on the first, and transmitted to the second; another shade is added to the third, which is handed down to the fourth; and so on, through successive generations, until the fair German is transformed, by climate, into the black African!

"This idea is *proven to be false*, and is abandoned by the

well-informed writers of all parties. A sun-burnt cheek is never handed down to succeeding generations. The exposed parts of the body alone are tanned by the sun, and the children of the white-skinned Europeans in New Orleans, Mobile, and the West Indies, are *born* as fair as their ancestors, and would remain so, if carried back to a colder climate. The same may be said of other acquired characters (except those from want and disease). They die with the individual, and are no more capable of transmission than a flattened head, mutilated limb, or tattooed skin. We repeat, that this fact is settled, and challenge a denial.

"The only argument left, then, for the advocates of the *unity* of the human species to fall back upon, is that of '*congenital*' varieties or peculiarities, which are said to spring up, and be transmitted from parent to child, so as to form new races.

"Let us pause for a moment to illustrate this fanciful idea. The Negroes of Africa, for example, are admitted not to be offsets from some other race, which have been gradually blackened and changed in moral and physical type by the action of climate; but it is asserted that, 'once in the flight of ages past,' some genuine little Negro, or rather many such, were born of Caucasian, Mongol, or other light-skinned parents, and then have turned about and changed the type of the inhabitants of a whole continent. So in America, the countless aborigines found on this continent, which we have reason to believe (see Squier's work), were building mounds before the time of Abraham, are the offspring of a race changed by accidental or congenital varieties. Thus, too, old China, India, Australia, Oceanica, etc., all owe their types, physical and mental, to *congenital* or *accidental varieties*, and all are descended from Adam and Eve! Can human credulity go farther, or human ingenuity invent any argument more absurd? Yet the whole groundwork of a common origin for some nine or ten hundred millions of beings, embracing numerous distinct types, which are lost in an antiquity far beyond all records or chronology, sacred or profane, is narrowed down to this 'baseless fabric.'

"In support of this argument, we are told of the porcupine family of England, which inherited for some generations a peculiar condition of the skin, characterised by thickened warty excrescences. We are told also of the transmission from parent to child of club feet, cross eyes, six fingers,

deafness, blindness, and many other familiar examples of congenital peculiarities. But these examples merely serve to disprove the argument they are intended to sustain. Did any one ever hear of a club-foot, cross-eyed, or six-fingered *race*, although such individuals are exceedingly common? Are they not, on the contrary, always swallowed up and lost? Is it not strange, if there be any truth in this argument, that no race has ever been formed from those congenital varieties which we *know* to occur frequently, and yet races should originate from congenital varieties which cannot be proved, and are not believed, by our best writers, ever to have existed? No one ever saw a Negro, Mongol, or Indian, born from any but his own species. Has any one heard of an Indian child born from white or black parents in America, during more than two centuries that these races have been living there? Is not this brief and simple statement of the case sufficient to satisfy any one that the diversity of species now seen on the earth cannot be accounted for on the assumption of congenital or accidental origin? If a doubt remains, would it not be expelled by the recollection of the fact that the Negro, Tartar, and white man existed, with their present types, at least one thousand years before Abraham journeyed to Egypt as a suppliant to the mighty Pharaoh?"

As no miraculously-originated diversity of race is even alleged in the Bible, it is needless to waste time in discussing the first of the three suppositions put forward by Dr. Nott. On the second and third hypotheses the question arises, Will the period which elapsed from Adam to that date at which we distinctly trace diversity of type, be sufficient to cover the possibility of the gradual creation of the diverse races? Not only will the answer be that diversities as distinct as those we find to-day may be traced back at least 4,000 years, but that the antiquity of man reaches back to an age long anterior to that of Adam.

Sir John Lubbock writes, in his "Pre-Historic Times," p. 328: "Our belief in the antiquity of man rests not on any isolated calculations, but on the changes which have taken place since his appearance; changes in the geography, in the fauna, and in the climate of Europe. Valleys have been deepened, widened, and partially filled up again; caves through which subterranean rivers once ran are now left dry; even the configuration of land has been materially altered, and Africa finally separated from Europe.

"Our climate has greatly changed for the better, and with it the fauna has materially altered. In some cases, for instance, in that of the hippopotamus and of the African elephant, we may probably look to the diminution of food and the presence of man as the main causes of their disappearance; the extinction of the mammoth, the *Elephas antiquus*, and the *Rhinoceros tichorhinus*, may possibly be due to the same influences; but the retreat of the reindeer and the musk ox are probably in great measure owing to the change of climate. These and similar facts, though they afford us no means of measurement, impress us with a vague and overpowering sense of antiquity. All geologists, indeed, are now prepared to admit that man has existed on our earth for a much longer period than was until recently supposed to have been the case.

"But it may be doubted whether even geologists yet realise the great antiquity of our race."

And in his "Origin of Civilisation," page 352, the same author says: "From the careful study of the remains which have come down to us, it would appear that the pre-historic archæology may be divided into four great epochs.

"Firstly, that of Drift, when man shared the possession of Europe with the mammoth, the cave-bear, the woolly-haired rhinoceros, and other extinct animals. This we may call the Palæolithic period.

"Secondly, the later or polished Stone Age; a period characterised by beautiful weapons and instruments made of flint and other kinds of stone, in which, however, we find no trace of the knowledge of any metal, excepting gold, which seems to have been sometimes used for ornaments. This we may call the Neolithic period.

"Thirdly, the Bronze Age, in which bronze was used for arms and cutting instruments of all kinds.

"Fourthly, the Iron Age, in which that metal had superseded bronze for arms, axes, knives, &c.; bronze, however, still being in common use for ornaments, and frequently also for the handles of swords and other arms, but never for the blades.

"Stone weapons, however, of many kinds were still in use during the Age of Bronze, and even during that of Iron. So that the mere presence of a few stone implements is not in itself sufficient evidence that any given 'find' belongs to the Stone Age.

"In order to prevent misapprehension, it may be as well

to state at once, that I only apply this classification to Europe, though in all probability it might also be extended to the neighbouring parts of Asia and Africa. As regards other civilised countries, China and Japan for instance, we, as yet, know nothing of their pre-historic archæology. It is evident, also, that some nations, such as the Fuegians, Andamaners, &c., are even now only in an Age of Stone."

Mdlle. Clemence Royer points out (*Agès Primitifs de l'Industrie*, *Encyclopédie Generale*, vol. i., p. 270) that while the recent discoveries of flint implements have thrown back to a distant period in the geologic past the existence of man, yet that these discoveries are only the evidences of the accuracy of the ancient traditions which pointed to remote periods anterior to the use of iron, when bronze was used, and again to a prior age when no metal was known, and the weapons of mankind were rudely-fashioned stones. Agreeing very much with Sir John Lubbock in the above division of pre-historic antiquity, she shows how, prior to the Neolithic period, there come long ages, of incalculable duration, during which the stone weapons become more rude, fit only to divide the flesh of animals, and not even fit to cut wood, as though man's intelligence was as yet only slightly awakened. Mdlle. Royer contends that, as early as the Miocene period of the tertiary strata, there is evidence that man existed—or, at any rate, that an animal existed—using with his hands sharp stones to separate the flesh of animals from their bones. The testimony she adduces is that of the bones scratched, or cut, or marked, as if struck or rubbed with some hard cutting surface, not marked as if by the natural teeth of carnivorous animals. She contends that in the same strata with the striated bones have been found stones—evidently artificially though rudely sharpened—capable of making the marks which the fossil bones actually show. That it seems as if the man of that period ate the raw flesh which he got but clumsily off the bones by means of his roughly-fashioned stone knives. The man of the Pliocene period, judged by the stone record, gives no testimony of improved condition; and it is not until the glacial changes, which almost entirely destroy the pliocene fauna, that Mdlle. Royer thinks you begin to trace human progress.

But, if a tithe of this argument be true, then, perhaps millions of years before the Bible Adam, men dwelt on the earth, lacking nearly all the intellectual ability of modern

men; men who knew not how to build them any dwellings, but crouched in the caves with the other fauna of the earth; men who knew not the use of fire, but who, like the beasts of prey of to-day, ate the flesh of the animals they killed, only supplementing their teeth and fingers with the rudely-sharpened flint. These men have all gone back into Nature's mighty womb; she has devoured her human offspring, and the rough-cut stone, and the bone it scraped, are the only signs left to-day of that far-off human presence. Now, in a later period—still far remote from all possible history—we find not man, but the evidences of his work, proving the exercise of higher intelligence. His stone weapons have distinct forms, are cut to pattern, and the use of fire is certainly traceable. If the researches of the early cavern period in Belgium are reliable, the man of that age was cannibal. Nearer still to us, and yet ages away, comes the reindeer period, when tools accompany weapons, and both are better finished, and traces of art begin to slowly manifest themselves. Now, in more modern times, not satisfied with destroying, man domesticates some of the animals, makes himself rude dwellings, and wears some clothes, polishes highly his weapons and his tools; and even yet we are not out of the Neolithic period, the length of which no man knows, except that your Hebrew fathom-line only hangs at its surface, being too short by innumerable chiliads of years to sound its mighty depths.

A form of the inquiry has been presented by the Duke of Argyll, in his "Primeval Man," as involving the following questions:—

"1st. The origin of man, considered simply as a species, that is to say, the method of his creation, or introduction into the world.

"2nd. The antiquity of man; or the time in the geological history and preparation of the globe at which this creation or introduction took place.

"3rd. His mental, moral, and intellectual condition when first created."

The Bible teaches that man was originated by special fiat of Deity, one man and one woman being first created, and all other human beings being descended by birth from this one pair. It is here maintained that outside the Bible, or equivalent mythic records, there is no more reason for attributing all human kind to one pair than there is for suggesting that all bees are descended from one male and

one female bee, or all elephants from one male and female elephant. That while it may or may not be true that change of food, climate, and soil, may gradually modify race, yet there is no reason to suppose that the diverse types of mankind now existing on the earth could have possibly been developed from one stock in the limited period accorded by the Bible chronology. That, on the contrary, not only does science show traces of man on the earth, long prior to the 4004 B.C. of the authorised Bible, but that it is actually possible to trace the distinct types of mankind existing to-day, and existing also at a period when, if the Bible testimony is to be relied on, all the families of the world, save that of Noah, had been entirely swept away by the Deluge. On the question of the absolute origin of the human family, man's experience can teach him nothing. Even on the alleged origin of any form of vegetable or animal life, it is doubtful whether the experiments advanced to vouch "spontaneous generation," have been sufficiently exact to avoid the possibility of error. But whether or not life can be artificially originated, it can clearly be moulded, augmented, and diminished in its presentations. By artificial processes and modes of culture, varieties of vegetable and animal life may most certainly be produced, departing more or less from the parent stock. How far such varieties, so artificially created, can become permanent, or whether their permanency is possible, is an open question. Some contend that such varieties "are not permanent, and either die out or revert to their original types." To the query : Whence came man? no answer is serious which pretends that the totality of existence is insufficient to possibly account for human life. To the query : How came man? it is only possible to open out the page of development of life, as revealed to us by geology and ethnology, tracing here, first, the gradations of existing life, like steps on some mighty ladder, and then looking back to where the evidences of the higher forms of life become more rare, and the lower are more plentiful. Wherever and whenever in the mighty laboratory of the universe life conditions are, there the life, the outcome of those conditions, must be.

The theory of the origin of the human race from Adam and Eve would have long since been abandoned but for the fact that Adam and his fall have been made the corner-stones of the whole Christian system. If Adam be myth, then the Fall and Atonement cease to be acceptable as

truths. The redemption scheme is based on the story of the Fall, and the abandonment of Adam's original sin involves the rejection of the Gospel of Jesus' sacrifice to restore mankind to their original state of perfection.

Nor is the theory of man's gradual development more difficult than the dogma of Adam's sudden creation. No man has ever witnessed the introduction of a new species of living animal, and yet geology affirms the introduction and cessation of many types and species. Vast periods have been necessary for these evolutions, periods transcending the limits of any possible Bible chronology. According to the Bible, the first man's intellectual condition must have been of the highest order; according to science, early man groped in a state of utter barbarism, out of which he has slowly and only partially emerged.

The evidences of man's antiquity on the earth have much increased during the last generation. While in historic investigation doubt has been thrown on the vast ages claimed, fifty years since, in Hindostan and Assyria, it has become clear that to pre-historic man an age must be accorded, beside which the long chronologies of India and Egypt dwindle into the pettiest arrays of insignificant figures. At present an endeavour will be made to marshal some few of the facts demonstrating man's existence on the earth prior to the date given in Genesis.

The difficulty of obtaining evidence of the antiquity of man has, until very lately, been of no ordinary character. Every discovery which seemed to show man to be older than Adam was ignored, explained away, or suppressed. Sir John Lubbock shows us, in the ninth chapter of his "Pre-Historic Times," how, when stone implements of undoubted human manufacture were found near Abbeville, the finder was derided as a madman, because, if real, they demonstrated a vast antiquity for the human family. To-day the flint implements found in France, England, and other countries are too numerous and too well vouched to be prayed down or frowned down as mere Infidel inventions. Three questions arising on these records of the stone age are thus stated by Sir J. Lubbock:—

"1st. Are the so-called flint implements of human workmanship?

"2ndly. Are the flint implements of the same age as the beds in which they are found, and the bones of the extinct animals with which they occur?

“3rdly. What are the conditions under which these beds were deposited? and how far are we justified in imputing to them a great antiquity?”

Answering the two first questions in the affirmative (pp. 276 and 283), Sir John Lubbock speaks of “the enormous time which must have elapsed since the first appearance of man in Western Europe.” Referring to a human skull found by Dr. Schmerling in the Cave of Engis, Sir John Lubbock says: “There seems no reason to doubt that it really belonged to a man who was contemporaneous with the mammoth, the cave-bear, and other extinct mammalia.”

If one account given by Dr. A. Koch to the Academy of Science at St. Louis be true—and there is no reason for disbelieving it, so far as I am aware, except that it proves the Genesis story to be false—then, at some remote pre-historic period, man had hunted the mastodon in the Mississippi Valley, for the bones of the mastodon, and the arrow heads used by the primitive hunters were found mingled together at Gasconade County, in Missouri (“Pre-Historic Times,” p. 234).

It was at one time the fashion to entirely deny the possibility of human fossil remains, but such human fossils have been discovered sufficiently often to preclude the further repetition of such a denial. Sir Charles Lyell, “Antiquity of Man,” p. 44, and Agassiz, “Types of Mankind,” p. 352, give the case of the jaws with perfect teeth and bones of the foot, found by Count F. de Pourtalès in a bluff on the shores of Lake Monroe, in Florida, having, according to Agassiz, a minimum age of ten thousand years. Those who turn to Nott and Gliddon’s work will find there a full statement of the human fossils discovered down to the time of the publication of the “Types of Mankind.” Fossil remains of man and the mastodon, similar in appearance, have been discovered together at Natchez, near Vicksburg, Mississippi. To avoid the force of this discovery it was suggested that, although found together and alike in appearance, they belonged to different eras.

Sir Charles Lyell, in his “Antiquity of Man,” p. 24, says: “My reluctance in 1846 to regard the fossil human bone as of postpliocene date arose, in part, from the reflection that the ancient loess of Natchez is anterior in time to the whole modern delta of the Mississippi. The table-land, was, I believe, once a part of the original alluvial plain or delta of the great river before it was upraised. It has now

risen more than two hundred feet above its pristine level. After the upheaval, or during it, the Mississippi cut through the old fluvial formation of which its bluffs are now formed, just as the Rhine has in many parts of its valley excavated a passage through its ancient loess. If I was right in calculating that the present delta of the Mississippi has required, as a minimum of time, more than one hundred thousand years for its growth, it would follow, if the claims of the Natchez man to have co-existed with the mastodon are admitted, that North America was peopled more than a thousand centuries ago by the human race. But even were that true, we could not presume, reasoning from ascertained geological data, the Natchez bone was anterior in date to the antique flint hatchets of St. Acheul." In plain words, that the men who wielded these last-named hatchets trod the earth at some period even yet more ancient than 100,000 years ago.

"At the forty-third meeting of the German Scientific and Medical Society at Innsbruck, in September, 1869, Mr. Karl Vogt (of Geneva) summed up the main results of the recent Congress of Palæontologists at Copenhagen. After vindicating the place of Primeval History as one of the exact physical sciences, he divided the subject under three headings. 1. *The Age of the Human Race*. There is no longer any doubt that man existed in Europe—probably the latest-peopled part of the world—at a time when the great Southern animals—the elephant, mammoth, rhinoceros, hippopotamus—were found there, which are now extinct. Even where no human remains or tools have been found, the acute researches of Steenstrup have found traces of man by distinguishing the bones which have been gnawed by animals from those which show signs of having been split by man for the sake of the marrow, or otherwise handled by him. It is equally certain that posterior to the advent of man the Straits of Gibraltar, of Dover, and the Dardanelles, as well as Sicily and Africa, were still united by isthmuses; the whole Mediterranean area was separated from Africa by a sea in the basin of Sahara; the Baltic was a sea of ice covering the whole of the low levels of North Germany and Russia, and cutting off Finland, Sweden, and Norway into what would have been an island but for its junction with Denmark. The astonishing researches of Lartet in France, of Fraas in Germany, and of Dupont in Belgium, have proved that this period was succeeded by

another, in which men hunted in the countries of Central Europe the reindeer and other Arctic animals, in an Arctic climate, and surrounded by an Arctic flora. We may also speak with confidence of the migrations of these primeval races; the human contemporaries of the most ancient animals—the mammoth, the cave-bear, and the cave-lion—can only be traced in the western and southern parts of Europe. In Central Europe and Switzerland, their remains are unknown. In the ‘reindeer period,’ again we find man in Switzerland and Suabia; but no trace of him in North Germany and Denmark. 2. *The Growth of Primeval Civilisation* is shown by the striking similarity of the tools dug up in caves of the ‘reindeer period’ in the South of France with those of the Esquimaux and Greenlanders collected in the Museum at Copenhagen. Our primeval Europeans were, no doubt, savages in the fullest sense, even those with a white skin being distinctly inferior, so far as we can make out, to the lowest type of modern savage, the Australian. They were cannibals, as has been lately shown by researches in Copenhagen. The lake villages in Switzerland, on the other hand, show that agriculture and the pastoral life flourished whilst the metals were still unknown, and that the introduction of them was connected with barter and trade. We are acquainted at present with a number of primeval manufacturing localities, and of the commercial routes which were used in the rudest times. It can be shown, moreover, that our civilisation came, not from Asia, but from Africa; and Heer has proved that cultivated plants in the Swiss lake villages are of African, and, to a great extent, Egyptian origin. 3. *The Corporeal Development of Man*, and the different families, kinds, and races of men, have been far less investigated than the corresponding divisions of the ape type. In many places, the skulls discovered have been few, but less than a year ago a whole cemetery of more than forty human skulls and skeletons, belonging to the ‘reindeer period,’ was discovered near Solutri, in France. We, therefore, now have considerable material for arriving at conclusions respecting primeval man of this period. There can be no doubt that man approaches more nearly in bodily conformation to the animal, and especially his nearest relative, the ape, the lower his stage of culture. As time goes on, these characteristics gradually vanish, the foreheads becomes more upright, the skull higher and more dome-shaped, and the projecting counte-

nance gradually recedes under the skull. These changes are the result of man's conflict with his circumstances, and to the mental labour which that conflict entails." (*Anthropological Review*, 1870, p. 219.)

Sir John Lubbock ("Pre-Historic Times," p. 320) says that the calculations made by M. Morlot and Professor Gilliéron as to the age of the lake-habitation at Pont de Thièle, near the Lake of Neufchâtel, indicate that "6,000 or 7,000 years ago Switzerland was already inhabited by men who used polished stone implements; but how long they had been there, or how many centuries had elapsed before the discovery of metal, we have as yet no evidence to show."

The *Quarterly Review*, vol. cxxv., p. 438, treating this subject, says: "A very few years ago—in fact, since the discovery of the Swiss lake dwellings—evidence was prominently brought forward in England to prove that the antiquity of man on the earth far transcended the common estimate of six or seven thousand years, seeing that tribes of men making and using very rude stone implements were already living in the time of the extinct quaternary animals. Since then the inquiry has been taken up with great vigour, and the search in gravel beds and limestone caverns has at any rate placed it beyond doubt that savage tribes of men inhabited Europe while the mammoth, the tichorine, the rhinoceros, the cave-bear, and the cave-hyena were still surviving in the land. Various attempts have been made to calculate the age of this period of early human history, and, loose as these estimates have been, it seems at any rate to have been very remote. These investigations, however, beside their inherent interest to all intelligent persons, gained a special attention from being looked upon as hostile to Christianity by a large public, who accordingly either feared them, or sometimes triumphed in them. But those theologians who most thoroughly understand the bearings of the case see at once the uncharitableness and injustice of bringing against such inquiries the imputation of heresy. Dates arrived at by the process of adding up generations and years and days, in such computations as that printed in the margin of our Bibles, can scarcely be regarded as limiting the age of the savages of Brixham and St. Acheul, when they would not be put in evidence against the high antiquity of the mammoths among whom these men lived. And however great may be the merit and use of calculations

based on the Bible, they carry upon their face the confession of their indefiniteness, and obviously cannot be taken as binding upon men's faith."

One most interesting piece of evidence as to man's comparative antiquity is that afforded by the remains discovered in the delta of the Mississippi, and on this we quote from Messrs. Nott and Gliddon's "Types of Mankind," p. 337, adding only Sir Charles Lyell's remark, "that nowhere in the world could the geologist enjoy a more favourable opportunity for estimating in years the duration of certain portions of the recent epoch" ("Antiquity of Man," p. 44): "The average depth of the Gulf of Mexico, between Cape Florida and the mouth of the Mississippi, is about 500 feet. Borings have been made near New Orleans to a depth of 600 feet, without reaching the bottom of the alluvial matter; so that the depth of the delta of the Mississippi may be safely taken at 500 feet. The entire alluvial plain is 30,000 square miles in extent, and the smallest complement of time required for its formation has been estimated at 100,000 years. This calculation merely embraces the deposits made by the river since it ran in its present channel; but such an antiquity dwindles into utter insignificance when we consider the geological features of the country. The bluffs which bound the valley of the Mississippi rise in many places to a height of 250 feet, and consist of loam containing shells of various species still inhabiting the country. These shells are accompanied with the remains of the mastodon, elephant, and tapir, the megalonyx, and other megatheroid animals, together with the horse, ox, and other mammalia, mostly of extinct species. These bluffs must have belonged to an ancient plain of ages long anterior to that through which the Mississippi now flows, and which was inhabited by occupants of land and fresh-water shells agreeing with those now existing, and by quadrupeds now mostly extinct.

"The plain on which the City of New Orleans is built, rises only nine feet above the sea and excavations are often made far below the level of the Gulf of Mexico. In these sections, several successive growths of cypress timber have been brought to light. In digging the foundations for the gas-works, the Irish spadesman, finding they had to cut through timber instead of soil, gave up the work, and were replaced by a corps of Kentucky axe-men, who hewed their way downwards through four successive growths of timber—the lowest so old that it cut like cheese. Abrasions of

the river banks show similar growths of sunken timber, while stately live-oaks flourishing along the bank directly above them, are living witnesses that the soil has not changed its level for ages. Messrs. Dickeson and Brown have traced no less than ten distinct cypress forests at different levels below the present surface, in parts of Louisiana, where the range between high and low-water is much greater than it is at New Orleans. These groups of trees (the live oaks on the banks, and the successive cypress beds beneath), are arranged vertically above each other, and are seen to great advantage in many places in the vicinity of New Orleans.

“Dr. Bennett Dowler (*‘Tableaux of New Orleans,’* 1852) has made an ingenious calculation of the last emergence of the site of that city, in which these cypress forests play an important part. He divides the history of this event into three eras: 1. The era of colossal grasses, trembling prairies, &c., as seen in the lagoons, lakes, and sea coast. 2. The era of the cypress basins. 3. The era of the present live oak platform. Existing types, from the Balize to the highlands, show that these belts were successively developed from the water in the order we have named; the grass preceding the cypress, and the cypress being succeeded by the live oak. Supposing an elevation of five inches in a century (which is about the rate recorded for the accumulation of detrital deposits in the valley of the Nile, during seventeen centuries, by the nilometer mentioned by Strabo), we shall have 1,500 years for the era of aquatic plants until the appearance of the first cypress forest; or, in other words, for the elevation of the grass zone to the condition of a cypress basin.

“Cypress trees of ten feet in diameter are not uncommon in the swamps of Louisiana; and one of that size was found in the lowest bed of the excavation at the gas-works in New Orleans. Taking ten feet to represent the size of one generation of trees, we shall have a period of 5,700 years as the age of the oldest trees now growing in the basin. Messrs. Dickeson and Brown, in examining the cypress timber of Louisiana and Mississippi, found that they measured from 95 to 120 rings of annual growth to an inch, and, according to the lower ratio, a tree of ten feet in diameter will yield 5,700 rings of annual growth. Though many generations of such trees may have grown and perished in the present cypress region, Dr. Dowler, to avoid all ground of cavil, has assumed only two consecutive growths,

including the one now standing ; this gives us, as the age of two generations of cypress trees, 11,400 years.

“The maximum age of the oldest tree growing on the live oak platform is estimated at 1,500 years, and only one generation is counted. These data yield the following table :—

GEOLOGICAL CHRONOLOGY OF THE LAST EMERGENCE OF THE
PRESENT SITE OF NEW ORLEANS.

| | Years. |
|----------------------------------|--------|
| Era of aquatic plants | 1,500 |
| Era of cypress basin | 11,400 |
| Era of live oak platform | 1,500 |
| Total period of elevation | 14,400 |

Each of these sunken forests must have had a period of rest and gradual depression, estimated as equal to 1,500 years for the duration of the live-oak era, which, of course, occurred but once in the series. We shall then certainly be within bounds, if we assume the period of such elevation to have been equivalent to the one above arrived at ; and, inasmuch as there were at least ten such changes, we reach the following result :—

| | Years. |
|---|---------|
| Last emergence as above | 14,400 |
| Ten elevations and depressions, each equal to the last emergence | 144,000 |
| Total age of the delta | 158,400 |

In the excavation at the gas-works, above referred to, burnt wood was found at the depth of sixteen feet ; and, at the same depth, the workmen discovered the skeleton of a man. The cranium lay beneath the roots of a cypress tree belonging to the fourth forest level below the surface, and was in good preservation. The other bones crumbled to pieces on being handled. The *type* of the cranium was, as might have been expected, that of the aboriginal American race.

| | Years. |
|--|--------|
| If we take, then, the present era at | 14,400 |
| And add three subterranean groups, each equal to the living, (leaving out the fourth, in which the skeleton was found) | 43,200 |
| We have a total of | 57,600 |

From these data it appears that the human race existed in the delta of the Mississippi more than 57,600 years ago ; and the ten subterranean forests, with the one now growing,

establish that an exuberant flora existed in Louisiana more than 100,000 years earlier ; so that 150,000 years ago the Mississippi laved the magnificent cypress forests with its turbid waters."

Coming to Europe for testimony, we take the Etruscans, utilising here the researches of Nicolucci :—" The primitive Etruscans occupied Tuscany, part of the Perugian province, and part of what became patrimony of St. Peter. They extended their possessions into three directions ; and as centres of their new acquisition they founded Felsina (now Bologna), the port of Luni, and Volturmo (now Capua). After a period of long duration, however, the Sanmites put an end to the Etruscan dominations in Lower Italy, destroying most of the inhabitants of Volturmo ; pouring like a torrent over the Alps, invading New Etruria, and ended the power of the Etruscans in Upper Italy, so that Etruria found herself reduced to her former limits ; and it was there that the strength of the whole nation, endured with its liberty, its laws, and its name, until it merged into Rome.

"Proofs abound to show that during the stone-age the Etruscan territory was inhabited, for stone utensils and weapons are being found almost everywhere. Stone weapons abound in the Upper Valley of the Tiber (which was Etruscan ground) at Ponte Molle, Tor di Quinto, and Acqua Traversa, on the right bank of the river ; and, as they are always found embedded in gravel, and never in sand or clay, it is clear that the primitive seat of the most ancient populations was the slopes of the Appennines, whence these *débris* were carried into the valley. Numerous bones of *Elephas meridionalis*, antiquies et primigenius, *Rhinoceros tichorinus*, *Hippopotamus major*, *Bos primigenius*, *Cervus elaphus*, *Dama romana*, are found in the same strata. And it was during the cutting of the Arezzo and Perugia Railway that Signor Cocchi found, at a depth of forty-eight feet in the valley of Chiana, the human skull known by the name of the Olmo skull. A brown flint lance-point was found at the same place.

"That man inhabited the same regions during the period of the polished stone weapons is abundantly proved by these implements of all kinds being found in the same regions. But still more conclusive are the proofs of the presence of man in that country during the bronze period ; and Signor Mellini, in 1854, found in a sepulchral grotto

upon Monte Calamita (Elba) three skulls, with a cup and a kind of tumbler in terra-cotta, and other ornaments. Professor Vogt having described these skulls, and Signor Bechi having made an analysis of the bronze, it was recognised that the ancient inhabitants, during the bronze period at least, could in no way belong to the Phœnician or Etruscan types afterwards peopling the same country. Professor Nicolucci thinks that the Umbrians were the masters of Middle Etruria during the bronze period. The cranial indices are nearly the same in the bronze-age man as in the Umbrian skulls found at Misanello, near Bologna" (*Anthropological Journal*, 1870, p. 80).

Probably the strongest English testimony to man's existence at a remote date is that afforded by the discoveries at Kent's Hole, near Brixham (*Westminster Review*, January, 1876, and "Report of Transactions of Plymouth Institution," 1875, on Flint Implements found in Kent's Cavern, by W. Pengelly, F.G.S.) Under two stalagmite floors—one of granular stalagmite five feet thick, and a second floor twelve feet thick, deposited, it is calculated, at the rate of the twentieth part of an inch in 250 years—have been found implements used by man. The following is Mr. Pengelly's own story: "That the deposits, with the constructive and destructive processes described, were not only distinct and successive, but also very protracted terms in the cavern chronology, is strikingly seen in considering the changes they indicate. 1st. During the period of the breccia (*i.e.*, the lowest deposit yet known) there was machinery capable of transporting from Lincombe or Warberry Hill, or both, or from some greater distance, fragments of dark-red grit, varying in size from pieces four inches in diameter to mere sand, and lodging them in the cavern. This so completely passed away, that nothing whatever was carried in, but the deposit already there was covered with a thick sheet of stalagmite, obtained through the solution, by acidulated water, of portions of the limestone in the heart of which the cavern lay. This stage having also ended, the stalagmite was broken up by some natural agency, the exact character of which it is difficult to ascertain, but which achieved its work, not by one effort, but by many in succession, and much of at least the breccia it covered was dislodged and carried out of the cavern. This re-excavating period having in like manner come to a close, a second deposit was introduced; but instead of consisting of dark-

red sand and stone, as in the former instance, it was made up of a light-red clay, and in it were embedded small fragments of limestone, which, from their angularity, could not have been rolled, but were in all probability supplied by the waste of the walls and roof of the cavern itself. 2nd. The paleontology of the two deposits is perhaps even more significant of physical changes, and the consequent absorption of time. When the cavern-hunting habits of the hyena are remembered, it will be seen that his entire absence from the fauna of the breccia, and his remarkable preponderance in that of the cave-earth, renders it eminently probable that he was not an occupant of Britain during the earlier period. To accept this, however—and there seems to be no escape from it—is to accept the opinion that, between the eras of the breccia and of the cave-earth, it had become possible for the hyena to reach this country, since he was actually here, and in great force; in other words, the men of the breccia, the ursine period of the cavern, saw this country an island as we see it—unless, indeed, their era was prior to this insularity—when it was also occupied by bears and lions, but not by hyenas; whilst in the time of their descendants or successors the whole of western Europe had been so elevated that the channel which previously and subsequently separated it from the continent was dry, and Britain was in a continental condition.”

This evidence goes to show that, even allowing for a much more rapid deposit of the stalagmite than any evidence justifies, a quarter of a million years, and perhaps ten-fold that time, before death came into the world by the first man Adam's sin, barbaric men had lived and died in Devonshire and Cornwall—men whose race we do not know, but whose weapons—more durable than themselves—remain to give testimony to their presence. Two readable lectures by Mr. Pengelly on the Cave-men of Devonshire, detailing, in popular language, the evidence on the subject, are recommended to the reader. When Mr. Vivian first brought the Kent Hole remains to the knowledge of the Geological Society, his paper was suppressed. To-day the same Geological Society has become much more liberal.

We read in the *Times* that on Wednesday evening, April 4th, 1876, at the Geological Society, a joint paper, by the Rev. J. M. Mello and Professor Boyd Dawkins, F.R.S., was read on the mammalia and traces of man found in the Robin Hood Cave. Mr. Mello referred to the explorations,

the plan of the cave, and the successive beds met with; and Professor Dawkins described the fossil remains found. Between the present floor of the cave and the rock below four distinct beds can be traced. Beginning at the bottom, the lowest is a bed of sand with limestone fragments, about two feet thick, and containing no bones. Above this is a red sand of three feet thick, containing a large assemblage of bones all marked with hyena teeth. There seems no doubt that the bones were carried into the cave by hyenas. Among the remains is sufficient indication to identify the following—woolly rhinoceros, mammoth lion, grisly bear, brown bear, bison, and reindeer. There is, however, not the slightest trace of man yet met with. Above this sand is a bed of “cave earth,” varying from one foot to three feet in thickness. It contains the same assemblage of animal remains as the last bed, but with them are found traces of man—rude, rough implements of quartzite, of the pattern of the valley gravels and the lowest beds of Kent’s Hole. Among them one flint scraper has been found. Quartzite pebbles abound close at hand in abundance, and hence the raw material. Above this “cave earth” is a thickness of stalamic breccia. Here flint implements are the rule and quartzite the exception. Flints for the manufacture of implements are to be met with further off than the quartzite. These implements are of a higher type—that of the spear head. The animal remains in this bed are lion, cave hyena, fox, wolf, grisly and brown bear, Irish elk, reindeer, bison, horse, wild boar, hare. The evidence which this cave affords, with the sequence of superposition of beds so clear, Professor Dawkins spoke of as of the highest importance with reference to the grouping of paleolithic implements. It fits in, too, in a remarkable way with the theories founded on the examination of Continental caves.

No allegation need be, or ought to be, made by Free-thinkers as to the antiquity of the human race other than this :—That at a period farther back than any record save that which geology affords, and sufficiently remote to leave no means of fixing it with anything like certainty, undeniable traces of man’s presence are found in different portions of the world, and that historic man is certainly carried back to an earlier date than the Mosaic era.

“It is natural,” says Paul de Remusat (*Revue des Deux Mondes*, 1870, p. 886), “to inquire whether there does not

rest in man some *souvenir* of the years, of the ages, which have preceded what is known as the historic period? Is there nothing, either in the habits or traditions of man, which in any degree recalls the tertiary world and its inhabitants?" Pointing out that many domesticated animals preserve habits inexplicable until illustrated by their condition in a savage state, M. Remusat thus summarises the views of M. Edgar Quinet and Dr. Louis Büchner: "The first ages of man were passed in the midst of gigantic and terrible animals, which it was necessary should be destroyed before there could be any dream of progress or civilisation, for civilisation is impossible without security. It is even possible that the disappearance of some of these monstrous beings, hitherto attributed by geologists to geologic causes, is due to man himself, for a long period incapable of all the arts, but, from the very earliest date, ready to kill. The remembrance of these combats would transmit itself from age to age, and the heroes of these ancient times would be the men who had destroyed the greatest number of animals. Now, the traditions of all peoples represent those of their ancestors whom they admire, and of whom they respect the memory, as sustaining frightful combats against dragons, monsters, and animals strangely formed and of huge size. Was not this because man had really battled with the grand and singular animals of the diluvium and of the tertiary era? The lion of Némée appears very different from the modern lion, and very much like the lion of the cave period. All those monsters destroyed by Hercules and Theseus were perhaps the gigantic animals which no longer exist. And not only the sentiment of their hugeness is perpetuated in the tradition, but their forms even, differing from modern shapes, have not been forgotten. The dragon has not been invented. The poets have described from tradition the pterodactylus." But adds M. de Remusat, "all this is not certain. Pure imagination would have been sufficient to enlarge the beings fought with by our fathers, just as our fathers themselves owe to imagination an exaggerated fame for their strength and courage. The reality of a gigantic animal is not necessary, and in human tradition imagination may figure higher than memory. The mixture of diverse faculties given to the same animal can be explained without invoking pre-historic existence. Men do not know how to entirely invent; they are constrained to increase what they see, or to unite upon some one animal the various gifts naturally

distributed over many species. Without having recourse to paleontology, it is easy to understand the fables of the ancients ; even the same fables are found amongst different races having no relation with each other."

Not only have human remains of vast antiquity been found, but at Brux, in Bohemia ; at Neanderthal, between Düsseldorf and Elberfeld ; at Caunsladt, at Lozère, at Engis, in the valley of the Meuse, in Belgium, and at Equisheim, human skulls have been discovered, some of which are remarkable also for their extreme variance from the skulls of modern races, located in the same countries. The Brux cranium is alleged to belong to the most ancient alluvium, the löss ; and this, and the Neanderthal skull, present an illustration of arrested development worthy careful examination by those who mock Mr. Darwin's theory (*Anthropologia*, October, 1874, p. 331). M. Gustave Lagneau, in No. 4 of the *Revue d'Anthropologie*, for 1873, contends that two distinct races are traceable in the North of France back to the age of the mammoth and the reindeer. In Professor Huxley's "Man's Place in Nature," p. 120, he says: "There can be no doubt that the physical geography of Europe has changed wonderfully since the bones of men and mammoths, hyenas and rhinoceroses, were washed pell-mell into the Cave of Engis ;" and he explains, in terms easy to the English reader, the distinction used by M. Lagneau, and generally by ethnologists and anthropologists, of "brachycephalic" and "dolichocephalic" skulls. "In some skulls [p. 146] the brain case may be said to be 'round,' the extreme length not exceeding the extreme breadth by a greater proportion than 100 to 80, while the difference may be much less. Men possessing such skulls were termed by Retzius *brachycephalic*. Other skulls have a very different, greatly elongated, form, and may be termed 'oblong.' In this skull the extreme length is to the extreme breadth as 100 to not more than 67, and the transverse diameter of the human skull may fall even below this proportion. People having such skulls were called by Retzius *dolichocephalic*." Of the Neanderthal skull, Professor Huxley wrote, p. 156 : "Under whatever aspect we view this cranium, whether we regard its vertical depression, the enormous thickness of its supraciliary ridges, its sloping occiput, or its long and straight squamosal suture, we meet with ape-like characters, stamping it as the most pithecoïd of human crania yet discovered." But, after examination of other bones of the skeleton, he

adds, that "in no sense can the Neanderthal bones be regarded as the remains of a human being intermediate between men and apes. At most they demonstrate the existence of a man whose skull may be said to revert somewhat towards the pithecoïd type—just as a carrier, or a pouter, or a tumbler, may sometimes put on the plumage of its primitive stock. And, indeed, though truly the most pithecoïd of known human skulls, the Neanderthal cranium is by no means so isolated as it would appear to be at first, but forms, in reality, the extreme term of a series leading gradually from it to the highest and best-developed of human crania."

Freethinkers are under no obligation to trace the development of man from some other genus; it is enough to show in antiquity such variations of human type as render impossible the hypothesis of a common origin in one pair less than 6,000 years ago.

Paul Broca, in an essay on *L'Anthropologie*, in the "Almanach de l'Encyclopédie," ridiculing the petty attempts of theologians to lengthen the Hebrew chronology by the aid of the Septuagint, says: "Il faudra prendre des mesures plus radicales, car ce n'est pas par années ni par siècles, mais par centaines, par milliers de siècles que se supputent les périodes géologiques." That is, that it is not enough to add years or centuries, but that hundreds and thousands of centuries are required. Without regarding the facts as conclusively demonstrated, M. Broca holds that the researches of MM. Desnoyers, Bourgeois, De Launay, and Issel, tend to verify the existence of man in the tertiary period, co-existing with the meridional elephant and the mastodon, and he quotes the discovery by M. Withney, Director of the Geological Survey in California, of the remains of a human skull in a bed of volcanic cinders, and at a depth of 153 feet, and which had above it five layers of volcanic lava and five strata resulting from watery deposit. This discovery was made while sinking a well on the eastern slope of the Sierra Nevada. M. Paul de Remusat, in a critique on M. Edgar Quinet's "La Création," affirms that M. l'Abbé Bourgeois has demonstrated the existence of man in the tertiary period (*Revue des Deux Mondes*, 1870, p. 866). It is scarcely needed that the reader should be reminded that a strong denial is yet maintained against the reality of tertiary man.

The Rev. Bouchier Wrey Savile, intending to damage the

advocates of man's antiquity, says (Journal of the Victoria Institute, 1875, No. 33, p. 39): "Probably at no period has there been such a variety of conjectures concerning the age of man on earth as those put forward in the present day." This is perfectly true; but it is so because, in the present day, specialists have made discoveries in history, anthropology, and geology, each of which discoveries has warranted a fresh conjecture. "The late Baron Bunsen contended," says Mr. Savile, "that man existed on earth about 20,000 B.C., and that there is no valid reason for assuming a more remote beginning of the human race ('Egypt's Place in Universal History,' iii. xxviii.). Mr. Jukes, a distinguished English geologist, places the age of man at 100,000 years." And so the Rev. Mr. Savile would pair off the two scientists as self-contradictory, and therefore availing nothing against the Bible. But Mr. Savile omits two things: 1. That both Baron Bunsen, the historian, and Mr. Jukes, the geologist, concur in carrying man back thousands of years before Adam. 2. That it is precisely in the quarter of a century which has elapsed since Bunsen commenced the publication of his great work on Egypt, that geology, ethnology, and anthropology have united in accumulating for us evidences of man's antiquity. To finish the Rev. Mr. Savile's enumeration: "Professor Fülroth affirms, in his work 'Der Fossile Mensch aus dem Neanderthal,' that it reaches back to a period of from 200,000 or 300,000 years. Dr. Hunt, the late President of the Anthropological Society, not content with the comparatively modest chronology of the Brahmins, which allows the human race an antiquity of 4,300,000 years, according to Sir William Jones, affirms that man has really existed on earth for the prolonged period of 9,000,000 years. While Professor Huxley, though cautiously declining to commit himself by naming a definite number of years, having affirmed in his lecture on the Fossil Remains of Man that the human race was existing when a tropical fauna and flora flourished in our northern clime, *i.e.*, during the Carboniferous era, we might fairly credit his theory concerning the antiquity of man with nine or even ninety millions of years." The Rev. Mr. Savile intends this as a sneer; but, in drawing the reader's attention to this sentence, and the one which follows, I make little doubt that all will see that, in truth, the vast measure of man's sojourn on the earth is not compressible within any limit at present ascertained. "Indeed," adds Mr.

Savile, of Professor Huxley, "in his speech at the Norwich meeting of the British Association, he asked his audience if the distribution of the different types of skulls did not point to a vastly remote time, when the distant localities between which there now rolls a vast ocean were parts of one tropical continent? And if so, does it not throw back the appearance of man on the globe to an era immeasurably more remote than has ever yet been assigned to it by the boldest speculators?" In a note the Rev. Mr. Savile adds: "A French Speculator boldly declares that the horse was killed and eaten in Europe before the commencement of the quarternary (*i.e.*, the post tertiary) up to the period termed the Age of Bronze—that is to say, during a period which cannot be estimated at less than 300,000 years" ("Les Origines du Cheval Domestique," par C. A. Piétrement, quoted by M. Chabas in his "Etudes sur l'Antiquité Historique, d'après les Sources Egyptiennes"). The Rev. B. W. Savile affirms—and in this we quite agree with him—that "the chronology of Scripture points distinctly to a period of about 6,000 years since the creation of man."

J. E. Howard, pleading on behalf of the Bible view, in a paper on "The Early Dawn of Civilisation Considered in the Light of Scripture," having commenced the human family with the Bible Adam (*Journal of Victoria Institute*, vol. ix, No. 39), is actually obliged to quote with approval the declaration of M. Lenormant, that "we possess no chronometer to determine, even approximately, the duration of the ages and the thousands of years which have elapsed since the first men of whom we find traces."

It may be fairly taken that, whatever the period of man's antiquity, it enormously exceeds the Bible chronology, and the next point treated will be that of the antiquity of type. Man has been here traced back long prior to Adam, and the question that remains for us is, can diversity of race be traced back prior to the alleged date of the Deluge?

At the meeting of the Society of Biblical Archæology on Tuesday, April 4th, 1876, a paper on "The Tertiary Race" was read by the Rev. H. S. Warleigh, M.A., which illustrates the difficulties actually recognised by the clergy, and the strange explanations to which divines are driven. The following were the author's conclusions: "According to the geologists, certain works of art are in existence, which prove that man must have been living as far back as the tertiary period of the earth's crust; and Egyptologists affirm that the

advanced state of early civilisation and art prove that man was made more than 6,000 years ago. On the other hand, some theologians say that man was not in existence till the present era, and that therefore mankind could not have produced these works, nor could they be the subjects of this alleged civilisation. These works of art, however, do exist, and they were made during the tertiary period ; but other manufacturers, besides those of the human race, may have produced them. The Bible mentions a race of intelligent and bodily-erect beings as existing before the tertiary period, who were capable of making these works of art, and who were in circumstances which would call for their production. The historical fragments which speak of this race are Genesis vi. 4 and Numbers xiii. 33. The passages which allude to it are Genesis i. 28, iv. 14—25. Thus it is evident that a powerful race, not of human origin, existed in the time of Adam, that it was of immense antiquity, and that it was not extinct in the days of Moses. This race might be called Genus Tertiarum ; or it might receive its Biblical appellation, Ha Nephilim—The Nephilim. This race may have lived in a highly civilised state in the valley of the Nile, and have left the stamp of their power there ; and some of them may have emigrated northward, and built the giant cities of Bashan. Perhaps some parts of ancient mythology relate to them ; and indeed the discovery of such a race throws much light on many obscure subjects of study, and at any rate, if proven on one point, supports the harmony of science and the Bible.” The texts relied on by the Rev. Mr. Warleigh do not at all sustain his position, except so far as that Cain’s marriage at a time when he had no other relatives than his father and mother is a flat contradiction to the theory of the development of the whole human race from one pair. The Rev. Mr. Warleigh argued that Cain’s wife was of the race of the Nephilim, and maintained that—“ 1. Though works of art have been found belonging to the tertiary period, this fact does not prove that they were manufactured by any of the human race, or that Adam was created earlier than about 6,000 years ago. They may have been made by the tertiarian race. 2. If the civilisation of Egypt can be proved to be as early as the last modified opinion of Bunsen makes it, this does not prove that it was the civilisation of the human race. It may have been that of the Nephilim, or other races. 3. If the Cyclopean works which are found in various parts of the earth.

are proved to be earlier than 6,000 years ago, and are of too ponderous a nature to have been executed by the mechanical contrivances in early human times, here is a race with sufficient bodily strength to execute them all with tolerable ease. 4. Many of the heathen mythologies and heroes may have been originated by persons and incidents which took place in times long prior to the days of Adam. 5. Comparative philologists tell us that the two oldest known languages, Hebrew and Sanskrit, bear tokens that they were derived from a common original language. This very language may have been spoken, not only by Adam, but also by these Nephilim; or, at any rate, by the kindred of Cain's wife. 6. If theologians should conclude that the utterances of scientists are inconsistent with the Bible, it may be well for them to reconsider whether these utterances contradict the Bible itself or only our traditions of the Bible. 7. Scientists should not hasten to conclude that the Bible is not defensible when it does not happen to fall in with the present amount of their knowledge. They should distinguish between what they now know and what there is for them yet to learn. 8. The Bible need not decline the test of true and mature science; but partial acquirements are not competent to judge it. 9. The Bible speaks of other powerful races, and it is not improbable that some of their descendants are existing now. 10. All of the *genus homo* have descended from Adam and Eve; but this fact does not prove that other similar, though inferior, *genera* do not exist." These propositions seem to grow out of one of the more than ordinarily weak efforts to reconcile the irreconcilable. If all the *genus homo* are descended from Adam, and if the Nephilim were not descended from Adam, then they were not human beings. If Cain married one of the females of the Nephilim, then he took his wife from amongst inferior animals. The whole hypothesis is pregnant with absurdity, and yet we find the Rev. Dr. Robinson Thornton, Vice-President of the Victoria Institute, saying ("Journal of the Transactions," vol. ix., No. 33, p. 31): "Many, both believers and unbelievers, imagine that, if the supposed discovery of traces of pre-Adamite man were confirmed, it would go very far to invalidate the authority of the Scriptures, and would at all events be inconsistent with the Biblical cosmogony. Is this so certain? I am far from saying that it has yet been satisfactorily made out, or even that reasonable grounds have been shown, for thinking it

probable that any rational beings—in human, or even in gorilla, form—did exist before Adam ; but is it so clear from the words of the Bible that there could not have been a prior type of humanity, which appeared and disappeared in one of those periods of mundane existence, anterior to the present state of things, at which Scripture hints, though it makes no definite revelation ?” That which the Rev. Mr. Warleigh states boldly the Rev. Dr. Thornton, more astutely, puts hypothetically. The facts as to man’s existence the Rev. Mr. Warleigh frankly admits, while the Rev. Dr. Thornton uncandidly uses language which may be read both ways. Dr. Hall had, in the introductory synopsis of the *Natural History of Man* prefixed to Pickering’s “*Races of Man*,” stated the point as raised by the Rev. H. S. Warleigh (see Pickering’s “*Races of Man*,” Bohn’s edition, p. 33). Unless the Rev. Mr. Warleigh means that Egyptian civilisation endured through and despite the alleged Deluge of Noah, his argument is good for nothing ; and if Mr. Warleigh means this, then he flatly contradicts Genesis ix. 18, 19, which limits the re-peopling of the earth to the descendants of the three sons of Noah. The view, that “from two human beings the universal race of men drew their origin,” is strongly maintained by Dr. Hall in the work to which we have just referred, and to which the reader can turn for the orthodox, but unsound, arguments, which may be used against him on this head. Dr. Hall pleads “that the truth and credibility of the Mosaic records are proved by the most striking testimonies of natural and civil history.” After dealing with the antiquity of the various types of man, some observations will be offered on this point.

A fine instance of the permanence of type is given in the case of the Egyptian fellah ; another in that of the Jew. The first—it is true, always living under one climate, and upon one soil—may be traced back for at least 3,500 years. The second, like the Gipsy, preserves his identity “in all the climates of the earth, and under all forms of government, through extremes of prosperity and adversity.” Mr. Layard has found us the Jew, about 2,600 to 2,800 years ago, prominent in the monumental evidence Assyria presents, and this type is traced in Egypt to as far back as 1671 B.C., where in the 17th Theban Dynasty you will find a Greek-faced man and Hebrew-faced woman rulers in Egypt ; and these, with other Greek, Jewish, Negro, Nubian, Egyptian, and Asiatic faces, are repeated on the monuments of Egypt.

Four distinct types are shown on one monument, dating about 3,300 years ago. The monuments of the 12th Dynasty—commencing about B.C. 2,337, or 11 years after the Deluge, according to Archbishop Usher's chronology—show Egypto-Caucasian, Asiatic, and Negro faces. It surely is not necessary to argue gravely against the Bible on this point; no sane person could pretend to find all these races only a few years after the Noachic flood had swept the world of life. Dr. Bertillon, in his elaborate article on "Anthropologie" ("Encyclopédie Général," v. ii., p. 348), says: "The permanence of human types, studied in historic times, appears extreme. Upon the monuments of Egypt 4,000 years old we have represented to us of the following types: African Negro, Fellah, Jew, Mongol, Greek, and Hindoo, with the respective characteristics which we know are theirs to-day. And the celebrated New Orleans skull—found underneath the superposed *débris* of four successive gigantic cypress forests buried under the deposits of the Mississippi, and which, according to the very lowest calculation, is more than 15,000 years old—represents the exact type of the North American red skin. Take then the Lydians, or blond Kabyles, with blue eyes—of whose struggles against Egypt 1,600 B.C. the Egyptian hieroglyphs tell the story; whom Scylax notes 1,200 years later, established in the neighbourhood of Mount Aouass, precisely where our officers find them to-day; and whom General Faidherbe has studied between our Algerian frontiers and Morocco—clearly proving how tenacious are the human type characteristics, and notably the persistence during from 3,000 to 4,000 years of this blond population on African soil. All these show what enormous resistance race-character opposes to the influence of surroundings (as climate, food, soil, and mode of life) when these are not combined with the otherwise powerful effects of admixtures of race. They prove how destitute of value are efforts indulged in to give an air of reasonableness to Bible History, which—examined by the unimpeachable monuments of Egypt—does not allow as much as 2,000 years to humanity to change from white to black, from the Jewish type to the Ethiopian; when 4,000 years of African sun have not been enough to brown the skin, the hair, or the eyes of the fair Kabyles of Mount Aouass. Thus all the evidence, historic and paleontologic, combines to prove the long resistance of type, and how little the imprint of race, that is to say, of heredity, can be effaced by surrounding con-

ditions. From this it results that, if we do not go beyond the historic period, all the probabilities (it is necessary even to say the certainty) are in favour of polygenesis. But to-day, now that it is demonstrated that man has survived several geologic periods, that already he was active in the tertiary period, and that it is necessary to allow millions of years for his history, one ought to avow that in such immensities of time the problem of monogenesis or polygenesis would find itself suppressed. On the one hand, there is no longer any reason to deny that a type, even very inferior, might have been able, under fortunate circumstances, and by a selection of immense duration, to modify itself and to elevate itself by example from an Australian type to an European type. But, on the other hand, there is no more reason to refuse to the creative or evolve cause of the human type, a simultaneous or successive action in diverse centres of appearance, for creative or evolve causes almost identical exhibiting themselves as the land emerged would probably produce very similar creations and evolutions. Thus botanists and zoologists explain the similitudes, the relations, and the differences of the diverse flora and fauna, and it is not less rational to suppose different centres of evolution for the human type." But, as Dr. Bertillon adds, these are hypotheses for which we are at present almost without hope of verification. There is no burden on the Freethinker, who finds evidence to reject the Bible story of man, that he should adopt therefore without reservation the views of Mr. Charles Darwin or of Mr. Herbert Spencer. There is only the duty of careful examination of every important hypothesis.

The orthodox editor of the Transactions of the Victoria Institute appears to believe in the rapid transmutability of type. He writes (p. 75, vol. ix.), "Dr. Kitchen Parker has called my attention to the distinct race the Americans are becoming, and how short a time has produced a considerable change." He adds, "The Yankee is a good sub-species already." Principal Dawson, in his address as President of the Montreal Natural History Society (May, 1874), says, in regard to changes culminating rapidly, and then becoming stationary, each "specific type has capacities for the production of varietal and race forms, which are usually exercised to the utmost in the early stages of its existence; and then remain fixed or disappear and reappear as circumstances may arise. Finally, the races fall off one by one as it approaches extinction." If this argument be fully accepted,

it may carry us much farther than would be approved by the pious editor of the journal of the Victoria Institute. Admitting that all vegetables and animals transported to countries differing essentially in soil and climate must be affected by the new surroundings, and this in a degree proportioned to the quality of the plant or animal and difference of surroundings, it is here denied that the amalgam in the United States of differing races, under conditions new and abnormal for nearly all the races, furnishes any evidence in favour of the orthodox theory.

At the close of the essay in the "Types of Mankind," on the Comparative Anatomy of Races, p. 465, Dr. Nott stated a number of positions which, so far as they seem to me to be borne out by the evidence, I shall here repeat, with some verbal variation, for which Dr. Nott must not be held responsible :—

1. That the surface of our globe is naturally divided into several zoological provinces, each of which is a distinct centre of evolution, possessing a peculiar fauna and flora ; and that every species of animal and plant originated in its appropriate province.

2. That the human family offers no exception to this general law, but fully conforms to it : mankind being divided into several groups of races, each of which constitutes an element in the fauna of its particular province.

3. That history affords no evidence of the transformation of one type into another, nor of the origination of a new and permanent type ; but that pre-historic records do tend to show types of man then existing, which we cannot trace to-day.

4. That certain types have been permanent for at least 15,000 years.

5. That permanence of type is a sure test of specific character.

6. That certain types have existed, the same as now, in and round the valley of the Nile, for a period prior to any alphabetic chronicles.

7. That the ancient Egyptians had already portrayed mankind as known to them, in diverse types, prior to any date assignable to Moses.

8. That high antiquity for distinct races is amply sustainable by scientific testimony.

9. That the existence of man, myriads of years since, in widely-separate portions of the globe, is proven by the dis-

covery of his osseous and industrial remains in alluvial deposits and diluvial drifts ; and more especially of his fossil bones imbedded along with the vestiges of extinct species of animals.

Dr. John Charles Hall says : " For that period of the world's history, from the Creation to the Deluge, we are solely indebted to the Mosaic records, the truth and credibility of which are proved by the most striking testimonies of natural and civil history " (Pickering's " Races of Man," p. 35). If by Mosaic records he meant the Pentateuch, it is enough to say that, so far as civil history is concerned, there is not even a fragment of corroborative testimony for the Pentateuch to be found in civil history ; and wherever natural history is capable of being called on for evidence, there is the most distinct contradiction between its version and that of the Bible.

It is hardly necessary to remind the careful reader of Genesis of the narrow and purely local creation conception of the Genesaic writer or writers. There is no broad or grand view of the universe given in the Bible story. You have an all-important earth, with a fixed firmament or sky, above, in which are also fixed the sun, moon, and stars, to give light to the earth. Above this firmament are stores of water to be let down when God shall open the windows of heaven. This the limited view of cosmos stated by a very poor narrator. That the earth was only one, and not the chief, member of the solar system—that myriads of worlds, and countless thousands of mighty suns, revolved in the vast expanse—all this was a conception, utterly beyond the untrained brain which bequeathed us the story of the creation of Adam and Eve. Kalisch says (Genesis, p. 51) : " The Bible is not silent on creation ; it attempts, indeed, to furnish its history ; but in this account it expresses facts which the researches of science cannot sanction, and which were the common errors of the ancient world."

The creation account is in the highest degree self-contradictory, as will be shown by the following epitome, which has been used by many writers before our time, and was published by us in the earliest edition of " The Bible : What it is," in 1856 (see last edition, Genesis, p. 20).

FIRST ACCOUNT (Genesis i. 1, SECOND ACCOUNT (commencing Genesis ii. 3).

Water abundant (i. 2, 5, 6, Water deficient (ii. 5, 6).

9, 10).

| | |
|---|--|
| Vegetation proceeds at God's fiat (i. 11, 12). | Vegetation does not take place for want of moisture and tillage (ii. 5). |
| Plants and herbs grow in the earth prior to the existence of man (i. 12). | Plants are not in the earth, and herbs do not grow because there is not a man to till the ground (ii. 5). |
| Animals are created before man (i. 20, 21, 24, 25). | Animals are created after man (ii. 19). |
| Man and woman created same day (i. 26, 27). | Man created first (ii. 7) and alone (18), then an interval for the creation and naming of animals (19, 20), then the subsequent creation of woman (21, 22), there having been no helpmeet found for him amongst the cattle, beasts, and fowl (20). |
| Man made to have dominion over all the earth (i. 28). | Man made to dress and keep the Garden of Eden (ii. 15). |
| Every fruit given to man for food (i. 29). | One kind forbidden (ii. 17), and another withheld (iii. 22). |
| Concludes with blessing (ii. 3). | Concludes with cursing (iii. 14 to 19). |

(See also Kalisch on Genesis, p. 83).

The question with which this section opened has now its distinct answer, so far as it is possible here to give it. The Genesis story of man's origin is not true; the "whence and how" of man is not traceable in the Pentateuchal narrative. On page 65 we have alluded to the hypothesis which, accepting the universe as sufficient for all its phenomena, affirms the evolution of life instead of inventing a life-creator other than the universe, in order to account for life. It does not, however, come within our scope to trace out and examine the evolution theory in detail. Mr. Herbert Spencer, in his "First Principles," his "Principles of Biology and Psychology," and his "Descriptive Sociology," stands as teacher at the head of one school of English Evolutionists, and to him the reader is referred. Nor can we attempt here to follow, step by step, the gradual ascent from the earliest-recorded simple life-form of primeval time to

the complex organisations now spread over the globe. This has been done by such men as Mr. Alfred Wallace, and, with untiring patience, by Dr. Charles Darwin. The latter, in his "Origin of Species" and "Descent of Man," suggests how, "under the laws of growth, with reproduction; inheritance almost implied by reproduction; variability from the indirect and direct action of the external conditions of life, and from use and disuse; a ratio of increase so high as to lead to a struggle for life, and as a consequence to natural selection, entailing divergence of character and extinction of less improved forms;" life-forms adapt themselves to the conditions around them. These life-forms, by the survival of those best suited to their environment, have, he maintains, ascended in a long gradation, becoming more and more complex as they ascend, evolving through countless generations the organs most fitted to maintain and to preserve life, modified by the conditions surrounding them, and, in their turn, modifying those conditions, and thus, by a continual inter-action, evolving the races of animal life now existent.

Amongst the objections to Mr. Darwin's "Theory of Natural Selection" are :—

1. The absence of transitional forms, it being an admitted fact that species are now, if not fixed in their boundaries, yet remarkably well-defined. To this Mr. Darwin rejoins that the records are fragmentary, and the researches incomplete.

2. The inconceivability of the proposition that the highest organisms have arisen through successive modifications by natural selection from the lowest forms. This is, however, an objection of a nature often hazarded in the infancy of mighty theories.

3. The special difficulty of conceiving the "instincts" of the bee and ant as having so arisen.

4. The fact that sterility results from hybridism. This objection, it is maintained, is not fairly against Mr. Darwin, but against a misconception of his teachings.

The general evolution theory, as distinguished from that of Mr. Darwin, is that "the multitudinous kinds of organisms that now exist, or have existed during past geologic eras, have arisen by insensible steps through actions such as we see habitually going on."

Professor Huxley says ("Lectures on Organic Nature," p. 26) : "We have gradually traced down all organic forms,

or, in other words, we have analysed the present condition of animated nature, until we found that each species took its origin in a form similar to that under which all the others commenced their existence. We have found the whole of the vast array of living forms, with which we are surrounded, constantly growing, increasing, decaying, and disappearing ; the animal constantly attracting, modifying, and applying to its sustenance the matter of the vegetable kingdom which derived its support from the absorption and conversion of inorganic matter."

The evolution of man from lower forms of life scarcely, as yet, takes rank as a scientific truth ; it is rather a grand hypothesis, which, if verified, may throw light on many problems of existence, and is, at least, in analogy with the workings of nature, so far as we know them. When we first catch a glimpse of man, he is, as has been already shown, but a half-human animal dwelling in caves, disputing with his co-brutes for existence ; we can trace him thence upwards to the civilised European ; it seems reasonable, then, to trace him downwards also to the unintelligent life in its lowest forms, halting only when organic and inorganic blend together in the far-off yesterday.

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